Clean Water, Green Jobs

A Stimulus Package for Sustainable Water Infrastructure Investments

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POLIS Project on Ecological Governance
University of Victoria

Alliance for Water Efficiency

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FORUM FOR LEADERSHIP ON WATER

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A 21st Century Approach

Many experts and organizations are calling for infrastructure investments to stimulate the Canadian economy, including specific attention to water and wastewater infrastructure. We agree with the need to invest in water and wastewater infrastructure. However, there is a risk that through efforts to resuscitate the economy, resources will simply be poured into the creation of traditional, expensive and energy-intensive pipelines, pumps, and plants. Fueling this outdated approach to water infrastructure will create new debt for future generations, increase pressure on freshwater ecosystems, and increase Canada's public health care costs and carbon emissions.

We propose an alternative approach that has the potential to make Canada a global leader in 21st century solutions to water infrastructure problems. These solutions can be deployed quickly and broadly, creating jobs and stimulating the economy much faster than traditional water infrastructure projects. They include: repairing and upgrading existing built infrastructure, restoring green infrastructure, and spurring new technology and innovation in water efficiency. This approach will create jobs in the near term, save Canadians money in the long-term, protect and enhance public health and the environment, and put Canada ahead of the pack in the global market in developing new water technologies.

What can Sustainable Water Infrastructure do for Canada?

Reduce the Water Infrastructure Deficit

- Much of the water, wastewater and stormwater infrastructure in Canada is over 50 years old. It is approaching the end of its service life and poses a threat to public and environmental health.
- Canada's existing municipal water infrastructure deficit is $31 billion.

Create Jobs in the Short-Term

- $1 billion invested in addressing the water infrastructure deficit would create between 11,500 and 47,000 jobs.
- Investments in water efficiency can be quickly deployed to yield 15,000 to 22,000 new jobs for each $1.2 billion spent with broad-based economic benefits.

Save Money in the Long-Term

- Investments in green infrastructure and water efficiency would save taxpayers millions of dollars in forestalling future large capital expenditures in infrastructure.
- The Region of Peel plans to defer $112 million in new water supply infrastructure through a 12 year water efficiency plan costing $33 million, saving 51 ML in average annual day consumption.

Conserve Water and Energy

- The Region of Durham's water efficiency field trial reduced water use by 22%, electricity by 13% and gas by 10%. Combined water savings resulted in annual CO_2 reductions of 1.2 tonnes per household – an 11% reduction.
- A recent study demonstrates that by increasing water efficiency by 20% the Province of Ontario would save enough electricity to power 95% of all homes in Toronto each year.

Create a Global Market for Water Technologies

- The global market size of the water industry is estimated to be US$360 billion; it is forecasted to rise to US$1.6 trillion in 10 years.
- The Conference Board of Canada, Royal Bank of Canada and many others have identified the huge growth potential for innovative water technologies in the global market.

A Sustainable Water Infrastructure Plan

The Government of Canada has committed to accelerate implementation of the $33 billion Building Canada Plan. To date, funding announcements under the plan have included support primarily for *new* water and wastewater infrastructure projects. We propose a separate **$4.5 billion Sustainable Water Infrastructure Plan** to address Canada's *existing* water infrastructure deficit and position Canada as a world leader in sustainable water infrastructure. This plan would create a **minimum of 50,000 new jobs.** As with other infrastructure programs, federal investments could be matched with a further $9 billion investment from provinces and municipalities, creating at least **another 100,000 jobs**.

Repair and Renew Existing Infrastructure

Investment: $3.5 billion

- Support municipalities and First Nations in repairing and updating aging and leaky water mains and combined storm sewer systems. Work with the Federation of Canadian Municipalities to identify progress towards eliminating Canada's water infrastructure deficit. Securing safe drinking water in First Nation communities should be a top priority.
- Assist municipalities in upgrading existing wastewater treatment plants to meet the Government's proposed new wastewater effluent standards.

Restore Green Infrastructure

Investment: $500 million

- Create a ***Green Infrastructure Fund*** to assist municipalities and First Nations in implementing strategies to reduce water use, leakage, wastewater and stormwater discharges through green infrastructure and innovative stormwater management, such as permeable pavement, green roofs, urban wetlands and stream restoration.
- The Government of Canada should lead by example by implementing green infrastructure in federally-owned buildings, prioritizing those serviced by combined sewers that are prone to overflow.

Conserve Water and Energy

Investment: $500 million

- Develop the first-ever federal ***Municipal Water Efficiency Fund*** to support municipalities and First Nations in the design and implementation of water efficiency programs. Such investments will optimize existing infrastructure by enabling municipalities to serve more water customers out of current inefficiencies and by delaying or avoiding costly, and often unnecessary, expansion.[1]
- When reviewing new water and wastewater infrastructure projects under the Building Canada Plan, implement a **'Blue Screen'** that requires water efficiency plans and programs as eligibility criteria for federal funding of large-scale water and wastewater projects. Plans should be based on a goal of becoming financially self-sustaining through full cost accounting and long-term asset management.
- Implement a ***Water Efficiency Act*** that sets mandatory water efficiency standards for appliances and phases out outdated technologies.

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[1] **Note: the following Regional Municipalities have expressed an interest in working with the Government of Canada to develop and utilize a Municipal Water Efficiency Fund and program: Region of Durham, Region of Peel, York Region and the Capital Regional District of Vancouver Island.**

BACKGROUNDER

Introduction

Canada is experiencing historic economic and environmental challenges. Yet where there are challenges, there are also opportunities. Top among these opportunities is the potential to address Canada's growing infrastructure deficit and shape sustainable Canadian communities while at the same time creating green jobs for the modern economy. With federal leadership we can channel Canada's ingenuity into solving our entwined economic, energy and water crises.

Investing in sustainable water infrastructure is a both good for the economy and good for the environment. It is an approach that focuses less on building expensive and energy-intensive pipes and pumps and more on investments that encourage efficient use of water and energy, ensure safe water for all, produce long-term economic benefits, and protect and restore freshwater ecosystems.

Government of Canada Criteria for Economic Stimulus

Our proposed ***Stimulus Package for Sustainable Water Infrastructure Investments*** addresses the criteria for designing effective stimulus policies outlined by the Government of Canada:

Timely – It address Canada's large and growing deficit in water and wastewater infrastructure.
Maximum impact – It puts people to work, fixes Canada's crumbling infrastructure, and restores and protects our fresh water resources.
Flexible - It can be deployed in short time frames (in some cases 90 days or less), is applicable in all provinces and territories, and can be scaled according to need.
Consistent with Canada's long-term economic goals – It contributes to a modern sustainable economy and positions Canada at the forefront of global water industry innovation.

Why Invest in Sustainable Water Infrastructure?

The Water Infrastructure Deficit

Much of the water supply infrastructure in large Canadian centres is over 50 years old. In some towns and cities water pipes are literally crumbling. Outdated wastewater treatment plants and antiquated combined sewer overflow systems allow unacceptably high levels of pollutants to enter Canadian waterways. Further, traditional infrastructure is poorly suited to climate change adaptation. The risks of inaction include threats to public health and safety, beach and marina closures, and the degradation of fish and aquatic habitat.

- The Federation of Canadian Municipalities' 2007 report titled *Danger Ahead: The Coming Collapse Of Canada's Municipal Infrastructure* estimated that $31 billion is needed immediately to fix existing water and wastewater infrastructure.
- A report of the Water Strategy Expert Panel estimated that Ontario alone requires $30 to 40 billion of investment in water infrastructure in the next 15 years.
- According to Statistics Canada, wastewater is the oldest type of infrastructure in Canada.
- Our outdated infrastructure is poorly suited to adapt to the consequences of heavy storms, which are expected to increase in frequency due to climate change. In August 2008, a heavy rainstorm in Montreal, overloaded an aging sewage system, causing flooding, a foul odour and tens of thousands of dollars in damage to businesses and homes.

Creating Jobs in the Near Term

Investments in sustainable water and wastewater infrastructure create jobs in sectors that cannot be outsourced, including plumbing, landscaping, engineering, construction and design. Green solutions also support supply chains and jobs connected to manufacturing of everything from rain barrels to dishwashers.

- A study by the Ottawa-based firm Informetrica Ltd. commissioned by the Federation of Canadian Municipalities shows that $1 billion in additional investment in basic public infrastructure would create 11,500 jobs, half in construction and half in other sectors.
- Fixing leaky pipes and updating existing water infrastructure could provide at least twenty years of major construction employment.
- In a recent paper *Transforming Water: Water Efficiency as Stimulus and Long-term Investment*, the Alliance for Water Efficiency calculated that a $10 billion investment in water efficiency in the U.S. would boost GDP by $13 to $15 billion and create between 150,000 and 220,000 jobs in over 20 different economic sectors.
- Investment in water efficiency programs can be rapidly deployed allowing the federal government to hit the ground running while it mobilizes resources for larger public works projects. The Alliance for Water Efficiency has identified a range of demonstrated approaches for quickly deploying efficiency programs in the field, initiated in time periods of 90 days or less.
- The greatest impact of investment in sustainable water infrastructure would occur in low income areas, including many of Canada's First Nations communities, where water distribution infrastructure is frequently inadequate and public health risks are greatest. Investment in these areas would create green employment opportunities where unemployment rates are highest.

Saving Money in the Long Term

Canada's sizable infrastructure deficit means we need to take care of repairs and maintenance of our existing assets and avoid expansion where possible. By maximizing the efficiency of existing infrastructure, Canadian municipalities can delay costs of future expansion.

- The Region of Peel plans to defer $112 million in new water supply infrastructure through a 12 year water efficiency plan costing $33 million, thereby saving 51 ML in average annual day consumption.
- The Halifax Regional Water Commission has used a sophisticated computerized monitoring system to reduce leakages in the Dartmouth and Halifax systems by 27 million litres of water a day, a cost savings of $500,000 annually.
- The Region of Durham estimates that if all new homes were equipped with High Efficiency Toilets, ENERGY STAR™ appliances, and drought tolerant gardens, it would save approximately $2.9 million in new water and sewer plant capacity. The cost of the program would be $1.4 million.
- A Ryerson University study evaluated municipal level costs and benefits of wide-scale implementation of green roofs in Toronto and estimated an annual cost saving of $37 million in avoided sewage overflow costs and energy costs.

Conserving Water and Energy

A significant amount of the energy used by municipalities comes from water and wastewater treatment and the distribution of water. Saving water saves energy and other resources that go into operating urban water infrastructure. Water savings of 20% to 30% can readily be achieved in many communities simply by repairing public infrastructure.

- Cochrane, Alberta, reduced water consumption by 15% and deferred a multi-million dollar pipeline by giving away toilet dams, low-flow showerheads and faucet aerators.
- Water efficiency reduces energy demand greenhouse gas emissions associated with moving and treating water and wastewater. By increasing water efficiency by 20% the Province of Ontario could conserve 600 billion litres of water annually, and save enough electricity to power 95% of all homes in the city of Toronto each year.
- Energy costs for water in the Region of Peel were $25 million in 2006 and one third of the City of Guelph's energy costs are for wastewater treatment.
- Upgrades to the City of Guelph's Wastewater Treatment Plant will allow the city to save money by producing energy on-site through co-generation. The plant will generate 4,020,000 kWh annually (enough energy to power 469 homes) offsetting 3,500 tonnes of greenhouse gas emissions and with anticipated savings in electrical costs of $300,000 annually.

The Global Market for Water Technologies

Creating a policy and budgetary framework that promotes a 21st century approach to sustainable water infrastructure will cultivate innovative green solutions and foster Canadian innovation in the burgeoning global water-tech industry. This is an industry that is set to grow rapidly as the challenges of water scarcity and clean drinking water become more pressing nationally and globally.

- The business community has identified the potential value of innovative water solutions such as those applied by Pure Technologies, a company that develops technologies for inspection, monitoring and management of water infrastructure.
- A recent report from New York based Lux Research, called *Water Cultivation: The Path to Profit in Meeting Water Needs*, states that revenues of the world's water-related businesses will rise from $522 billion in 2007 to nearly $1 trillion by 2020 and predicts that a world faced by water shortages will need a new "water cultivation" approach characterized by efficiency, reuse and source diversification.
- The Conference Board of Canada's report *Canada's Pathways Toward Global Innovation Success* highlights substantial opportunities in the growing water-tech industry. It states that: "Canada should focus on the hefty and growing US$360 billion industry in water management, which includes quality enhancement, filtration and desalination, transmission and usage efficiency, metering, and system management."
- In a recent speech entitled *Helping to Create a Blue Water Future*, Gordon Nixon, CEO of the Royal Bank of Canada stated: "I can't imagine a more important legacy for our country and our children than to incubate made-and-built in Canada solutions to the water and energy issues that are plaguing the world. To accomplish this, we must collectively create the right framework to attract research, and create an environment where new and innovative companies can succeed."

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Contributors to this document include:

The Forum for Leadership on Water (FLOW) is made up of leaders in water policy including independent experts and representatives of the following organizations: the Centre for Indigenous Environmental Resources, Nature Quebec, the Soil and Water Conservation Society, the POLIS Project, and WWF-Canada. In October 2007, they released *Changing the Flow, A Blueprint for Federal Action on Fresh Water.*

University of Victoria's POLIS Project is a transdisciplinary centre for research and action on ecological governance with a multi-year focus on water sustainability.

The Canadian Water and Wastewater Association (CWWA) represents the common interest of Canada's municipal water and wastewater systems to federal and interprovincial bodies with respect to policies, programs, national codes, standards, and legislation.

The Alliance for Water Efficiency is a broad-based non-profit organization located in Chicago dedicated to the efficient and sustainable use of water in the United States and Canada. It brings together a diverse range of stakeholders to advocate for water use efficiency and conservation.

Contact Information: Nancy Goucher | nancy@flowcanada.org | 519-897-0338